SOMMER DILLY & AIDA JIMENEZ ESQUILIN, Department of Natural Sciences and Mathematics, University of Charleston, Charleston, WV, 25304. Effects of Sargassum amendment in soil health parameters in a West Virginia agricultural soil.

Since 2011, coastal towns all over the Caribbean Sea have experienced massive rafts of *Sargassum* accumulation along their beaches with the worst episode on record in 2018. This accumulation results in ecological problems such as trapping and suffocating ocean life and leads to odor pollution due to decomposition. This invasive brown seaweed, which is now becoming the new normal, also presents an economic problem as it negatively affects the tourism economy of these nations. We posed the question: Can the *Sargassum* seaweed be recovered on the shore and reutilized to improve soil health? We hypothesized that the partially decomposed *Sargassum* can be dried and used as a successful source of carbon and nitrogen to stimulate the soil microbial community, which in turn helps plant growth. We amended soil from a West Virginia garden with differing amounts of dried *Sargassum* seaweed (0%, 25%, and 50%) and assessed soil respiration and protease activity as a measure of soil C and N dynamics, respectively, at two-time intervals (12 and 28 hours). We found that soils without amendment showed statistically significant lower respiration ($p=0.002$) and protease activities ($p<0.001$) compared to *Sargassum* amendments. The 50% amendment showed the highest increase in both parameters. Increased soil respiration relates to higher microbial activity, and increased protease activity relates to an increase in N availability. We discuss the potential for this amendment to help ameliorate N limitation and plant growth. Overall, these results show that *Sargassum* could be reused as a promising fertilizer and warrant further study.